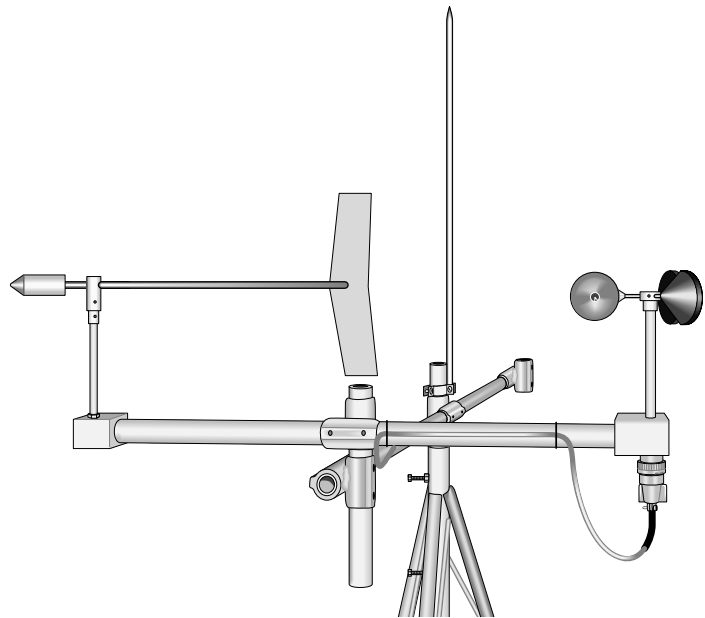


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# Wind Speed and Direction Sensors

## Model CS800

The CS800, a modified version of the Wind Mark III manufactured by Climatronics, Inc., is a high performance wind speed and direction sensor designed specifically for air quality applications. The CS800 features low starting thresholds allowing accurate measurements at low wind speeds. This sensor meets the requirements for use in PSD applications (Prevention of Significant Deterioration) as set forth by the EPA. The CS800 requires a continuous 5 to 7 Vdc power source which can be supplied through the 5 V terminal on the CR200 series, CR510, CR800, CR10X, CR1000, or CR3000, or a CAO port on the CR3000, CR7, or CR9000X.



### Wind Speed

The wind speed sensor is a three-cup anemometer with a light 20-slot photochopper. Rotation of the cupwheel produces a high frequency pulse that is directly proportional to wind speed. The frequency of the pulse is measured by a datalogger pulse count channel, then converted to engineering units (mph, m/s, knots).

### Wind Direction

A wind vane with a low-torque potentiometer senses wind direction. With the precision excitation voltage from the datalogger applied to the potentiometer element, the output signal is an analog voltage that is directly proportional to the azimuth of the wind direction.

### Mounting

The CS800 can be attached to a CM202, CM204, or CM206 crossarm via a 1049 NU-RAIL fitting or CM220 Right Angle Mounting Bracket. Alternately, the CS800 can be attached to the top of our aluminum tripods via the CM215 Sensor Mounting Kit.

### Ordering Information

- |         |   |
|---------|---|
| CS800-L | Climatronics Wind Mark III with user-specified lead length. Enter lead length, in feet, after L.                  |
| 1049    | ¾" x 1" NU-RAIL Fitting for attaching the sensor to a horizontal crossarm, such as a CM202, CM204, or CM206.      |
| CM220   | Right Angle Mounting Bracket for attaching the sensor to a horizontal crossarm, such as a CM202, CM204, or CM206. |
| CM215   | Sensor Mounting Kit for attaching sensor to the top of a CM110, CM115, or CM120 aluminum tripod.                  |



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## Recommended Lead Lengths

These lead lengths assume the sensor is mounted atop the tripod/tower via a CM202 crossarm.

CM6	CM10	CM110	CM115	CM120	UT10	UT20	UT30
10'	13'	13'	19'	24'	13'	24'	34'

## Specifications

### Wind Speed

Accuracy:	0.25 mph or 1.5%
Threshold:	<1 mph
Distance Constant:	8.0 ft of air max
Operating Range:	0 to 125 mph
Sensor Output:	20-hole photochopper, amplitude dependent on supply voltage; frequency proportional to wind speed:

$$\text{Freq (Hz)} = (\text{mph} - 0.3) / (0.4388)$$

Temperature Range:	-40° to 60°C (-40° to 140°F)
Power Requirements:	5 to 7 Vdc @ 1 mA nominal

### Wind Direction

Accuracy:	±0.3°
Threshold:	<1 mph
Distance Constant:	8.0 ft of air max
Damping Ratio	0.4 to 0.6 @ 10° displacement
Operating Range:	0° to 360° - mechanical
Sensor Output:	2 kohm potentiometer -- excitation voltage proportional to 0° to 355°

### Dimensions

Crossarm length:	27.50" between instruments (center to center)
Mounting diameter:	1.05" O.D., standard ¾" pipe



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